



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4686-1
Job Sheet 167070-A



Part No: D4686-1

Job Qty: 16 ea

Part Name: Spacer



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 10/23/17

Job Tracking No:

Due Date: 11/10/17

Created By: Victoria Michaud-Febrille

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	16 Ea		11/9/17	0.00	0.00	Start Up Machining	
100	Hardinge	16 pcs		11/9/17	0.01	0.47	Hardinge	
120	QC	16 pcs		11/9/17	0.00	0.00	QC8	
122	Outsource	16 pcs		11/9/17			MEI001-VC	
124	Packaging	16 pcs		11/9/17	0.00	0.00	Packaging2	
126	QC	16 pcs		11/9/17	0.00	0.00	QC6	
130	HandFinish	16 pcs		11/10/17	0.00	0.40	HandFinish1	
140	QC	16 pcs		11/10/17	0.00	0.00	QC7	
150	Packaging	16 pcs		11/10/17	0.00	0.00	Packaging3	
160	QC21-SA	16 Ea		11/10/17	0.00	0.00	QC21	

Part Op 100 - Machine as per Folio FB164

Descriptions: 122 - ISSUE P/O: 38268 To be heat treat to T4 condition as per dwg ENSURE C OF C IS ATTACH

124 - ENSURE C OF C IS ATTACH

150 - ***STOCK IN SKIDTUBE CELL**

C 217/10/10

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	M6061T6T0.750W.058	7	96	0	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Spacer	0.750Inches $\pm$ 0.010	0.760 0.740		Reference, Diameter
2	Spacer	0.058Inches $\pm$ 0.010	0.068 0.048		Reference
3	Spacer	5.200Inches $\pm$ 0.063	5.263 5.138		

Plex 10/23/17 3:56 PM dart.Michaud-Febrille.Victoria

DQA:

Date:

QA Closed:

Date:

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only



Work Order:

Part No.

NCR No.

Date:

PART NO: D4686 - 1
Revision:
Operation: Outsource
Change No:

S014376

Spacer



DART AEROSPACE

SI Mi mo Li Q

PART NO: D4686 - 1
Revision:
Operation: Start up Operation
Quantity: 16
Change No:

Mfg Date: 10/30/17
Job No: 167070 - A

Dart Aerospace Ltd.

1270 Aberdeen Street
 Hawkesbury, ON K64 1K7
 CANADA
 TEL.: 1 613 632-5200
 Email: sales@dartaero.com
 www.dartaerospace.com

Roc

Environment	Design	Doc/Data	Equip/Tooling	Handling/Pre	Material	Internal Transport	Tribal Knowledge	LOA	Substation	Past Expiry Date	Misidentified
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Training

Product Improvement

Process Improvement

Manufacturing Process

Past Due

Tribal Knowledge

Wave/Twist in Tube

Marks/Chatter

OTHER:

Instructions incomplete

Drill Holes

Spacer

S003370



DART AEROSPACE

Engineering
 Quality
 Other

51042) Approval

Completed By

Supervisor
 Verification

QA Coordinator
 Approval

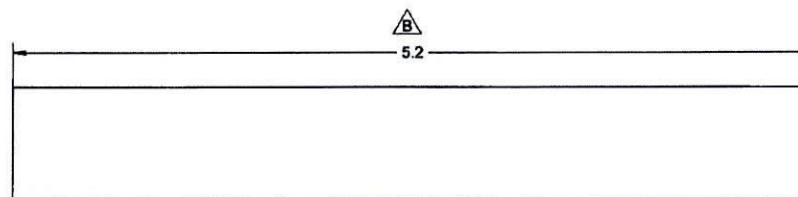
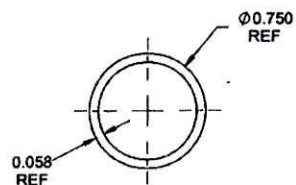
Dimensioned Wrong
 Dimensions
 Under tolerance
 Incorrect
 Lost/Missing
 Moved
 Missing
 Head

Turning Sequence

Dart Aerospace Ltd.

1270 Aberdeen Street
 Hawkesbury, ON K64 1K7
 CANADA
 TEL.: 1 613 632-5200
 Email: sales@dartaero.com
 www.dartaerospace.com

Misaligned/off center



D4686-1 SPACER

RECEIVED
2013-11-13
WP

- NOTES:**
- 1) MATERIAL: 6061-T4/-T42 SEAMLESS ALUMINUM TUBING $\phi 0.750 \times 0.058$ WALL PER WW-T-700/6, AMS 4081 OR ASTM B210 (REF. DART SPEC M6081T4T0.750W.058) OR 6061-T6/-T62 ALUMINUM TUBING PER WW-T-700/6, AMS 4080 / 4082, OR ASTM B210 (REF DART SPEC M6081T6T0.750W.058) HEAT TREAT TO -T4/-T42 CONDITION. MIN UTS = 30 KSI (60 HREW MIN)
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY PER QSI 044 METHOD 6.7
 - 7) WEIGHT: 0.06 lbs

REV.	DESCRIPTION	BY	DATE
B	SPACER LENGTH INCREASED BY 1.5 IN TO ACCOMMODATE SWAGING TOOL. LENGTH TOLERANCE CHANGED	AP	13.08.08
A	NEW ISSUE	AP	13.02.13
DESIGN	AP	DART AEROSPACE USA, INC. KENT, WA DRAWING NO. D4686 REV. B MFG. APPR. <i>AS</i> SHEET 1 OF 1 APPROVED <i>AP</i> TITLE SPACER SCALE DE APPR. <i>AP</i> NTS DATE 13.08.08 COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITING PERMISSION FROM DART AEROSPACE USA, INC.	
DRAWN	AP		
CHECKED	<i>AS</i>		
MFG. APPR.	<i>AP</i>		
DE APPR.	<i>AP</i>		



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038268

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO038268

PO Date: 11/6/17

Due Date: 11/16/17

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED
NOV 17 2017

Items

Line Item	Job	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	165669	D5304-1	-	Crossbolt Spacer HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C REQUIRED		Firmed	11/16/17	16 pcs	0 pcs	16 pcs	\$20.28125/pcs	\$324.50
2	167070-A	D4686-1	-	PART ARE MADE FROM 6061-T6 MATERIAL Spacer HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C REQUIRED		Firmed	11/16/17	16 pcs	0 pcs	16 pcs	\$20.28125/pcs	\$324.50
3	164979	D4456-1	-	PART ARE MADE FROM 6061-T6 MATERIAL Fwd Raingutter, LH HEAT TREAT TO 6061-T6		Firmed	11/16/17	4 pcs	0 pcs	4 pcs	\$67.1875/pcs	\$268.75

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
323149	1	123793

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
38268		AL-6061	2017/11/8	FEDEX
QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight

32 D5304-1
(16) D5304-1
JOB. 165669

(16) D4686-1
JOB. 167070-A

3,1

1 BOITE DE CARTON

8PA-11-25

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE Packing	
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QUANTITÉ EXPÉDIÉE / Quantity Shipped : 32

POIDS EXPÉDIÉ / Weight Shipped : 3,10

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

[Signature]

CERTIFICAT

QUANTITÉ EXPÉDIÉE Quantity Shipped: 32

POIDS EXPÉDIÉ / Weight Shipped : 3,10

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2017/11/21

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité

Certificate of Compliance

BON DE TRAVAIL
order

323149

CHARGEMENT
load

1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38268	N/A	AL-6061		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SOL ANNEAL

SINGLE AGING TO CONDITION T42

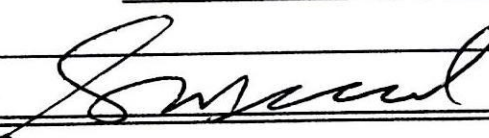
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	35 - 43 %IACS	32	40,5 - 41,5 %IACS
HARDNESS	60 HREW MIN	32	68 - 73 HREW
MESURE EN HR15TW = 67-69,5 HR15TW			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
32	3,1	D5304-1 (16) D5304-1 JOB. 165669 (16) D4686-1 JOB. 167070-A 1 BOITE DE CARTON

23/11/17

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2017-11-21

APPROUVÉ

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323149	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38268	N/A	AL-6061		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications SOL ANNEAL SINGLE AGING TO CONDITION T42				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
CONDUCT	35 - 43 %IACS	32 (60 kHz)	40.5 - 41.5 %IACS	
HARDNESS	60 HREW MIN	32	68 - 73 HREW MESURE EN HR15TW = 67-69,5 HR15TW	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
32	3.1	D5304-1 (16) D5304-1 JOB. 165669 (16) D4686-1 ✓ JOB. 167070-A 1 BOITE DE CARTON		

COMMENTAIRES / comments

SOL. ANNEAL 985F, 40 MIN

AGE HARDEN AMBIANT, 96 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

Ce document et les documents qui lui sont joints peuvent contenir des informations confidentielles, être soumis aux

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323149	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

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APPROUVÉ par / Approved by:

Isabel Otero
QA Technician



DATE: 2017-11-21